

IN THE CLAIMS:

1 1. (PREVIOUSLY PRESENTED) A network device for use in a computer network car-
2 rying network traffic, the network device comprising:

3 a traffic scheduler having one or more resources for use in forwarding network
4 traffic received at the device at different rates;

5 a classification engine configured to identify received network traffic based upon
6 predefined criteria; and

7 a resource reservation engine in communicating relationship with the traffic
8 scheduler and the classification engine,

9 wherein, in response to a first request to reserve resources for a given traffic flow
10 from a destination entity, the resource reservation engine allocates one or more resources
11 to the given traffic flow, but does not make the one or more allocated resources available
12 to the given traffic flow until receiving a second request to reserve the one or more re-
13 sources from the destination entity indicating that the destination entity accepts the traffic
14 flow.

1 2-4. (CANCELLED)

1 5. (PREVIOUSLY PRESENTED) The network device of claim 1 wherein:

2 the resource reservation engine utilizes a modified Resource reSerVation Protocol
3 (RSVP) specification standard, and

4 the first and second reservation requests are modified RSVP Reservation (Resv)
5 messages.

1 6. (PREVIOUSLY PRESENTED) The network device of claim 5 wherein:

2 the first and second modified Resv messages each include a two phase reservation
3 flag,

4 in the first modified Resv message, the two phase reservation flag is asserted, and
5 in the second modified Resv message, the two phase reservation flag is deas-
6 serted.

1 7. (CANCELLED)

1 8. (PREVIOUSLY PRESENTED) The network device of claim 1 wherein packets corre-
2 sponding to the given traffic flow are forwarded by the device in a best efforts manner
3 after receipt of the first request and prior to receipt of the second request.

1 9. (PREVIOUSLY PRESENTED) The network device of claim 8 wherein packets corre-
2 sponding to the given traffic flow are forwarded with the one or more allocated resources
3 after receipt of the second request.

1 10. (CURRENTLY AMENDED) In a computer network having a plurality of entities
2 interconnected by a plurality of intermediate network devices having one or more re-
3 sources for use in forwarding network traffic, a method for providing end-to-end resource
4 reservations along a route between two or more entities, the method comprising the steps
5 of:

6 receiving a first resource reservation message at a given intermediate network de-
7 vice disposed along the network route, the first resource reservation message from a des-
8 tination entity, the first resource reservation message identifying a traffic flow between
9 the two-one or more entities and the destination entity, and requesting a reservation of
10 resources;

11 in response to receiving the first resource reservation message, allocating one or
12 more of the device's resources for use in forwarding network traffic between the two-one
13 or more entities and the destination entity; and

14 withholding the one or more allocated resources from being applied to the traffic
15 flow between the two-one or more entities and the destination entity, until the plurality of

16 | given intermediate network device_s-receives a second resource reservation message from
17 | the destination entity, the second resource reservation message identifying the traffic flow
18 | and indicating that the destination entity ~~one of the two or more entities~~ accepts the traffic
19 | flow.

1 | 11. (CURRENTLY AMENDED) The method of claim 10 further comprising the step of:
2 | in response to receiving the second resource reservation message, making the one
3 | or more allocated resources available for use in forwarding the traffic flow between the
4 | ~~two-one~~ or more entities and the destination entity.

1 | 12. (CANCELLED)

1 | 13. (PREVIOUSLY PRESENTED) The method of claim 11 wherein the first and second
2 | resource reservation messages are modified Resource reSerVation Protocol (RSVP) Res-
3 | ervation (Resv) messages.

1 | 14. (CANCELLED)

1 | 15. (CURRENTLY AMENDED) The method of claim 11 wherein the steps of allocating
2 | one or more of the device's resources, withholding the one or more allocated resources
3 | and making the one or more allocated resources available are performed at each interme-
4 | diat network device disposed along the route between the two or more entities.

1 | 16. (CURRENTLY AMENDED) A method for providing resource reservations along a
2 | route through a computer network between two or more entities, the method comprising
3 | the steps of:
4 | generating a first resource reservation message by a destination entity identifying
5 | a traffic flow and requesting a reservation of resources;

6 configuring the first resource reservation message to include a first two phase res-
7 ervation flag; and

8 asserting the first two phase reservation flag so that resources within the network
9 will be allocated, but not made available to the identified traffic flow until the destination
10 entity accepts the traffic flow

11 generating a second resource reservation message by the destination entity identi-
12 fying the traffic flow;

13 configuring the second resource reservation message to include a second two
14 phase reservation flag; and

15 deasserting the second two phase reservation flag so that the allocated resources
16 are made available for application to the identified traffic flow.

1 17. (CANCELLED)

1 18. (CURRENTLY AMENDED) The network device of claim 1, further comprising:

2 a timer to measure a predetermined time period, wherein the resource reservation
3 engine discards the allocation of the one or more resources if the second reservation mes-
4 sage is not received prior to expiration of the predetermined time period.

1 19. (PREVIOUSLY PRESENTED) A router, comprising:

2 means for receiving a first resource reservation message, the first resource reser-
3 vation message identifying a traffic flow between ~~two~~one or more entities and a destina-
4 tion entity, the first resource reservation message requesting a reservation of resources;

5 means for allocating, in response to the first resource reservation message, one or
6 more of the router's resources for use in forwarding network traffic between the ~~two~~one
7 or more entities and the destination entity, but not making available the one or more
8 router's resources to the identified traffic flow;

9 means for receiving a second resource reservation message from the destination
10 entity; and

means for making available, in response to the second resource reservation message, the one or more router's resources to the identified traffic flow.

20. (CURRENTLY AMENDED) A computer readable media having information written thereon, the information having instructions for execution on a processor for ~~for~~ operating a router, the instructions for:

receiving a first resource reservation message, the first resource reservation message identifying a traffic flow between ~~two~~ one or more entities and a destination entity, the first resource reservation message requesting a reservation of resources;

allocating, in response to the first resource reservation message, one or more of the router's resources for use in forwarding network traffic between the ~~two~~ one or more entities and the destination entity, but not making available the one or more router's resources to the identified traffic flow;

receiving a second resource reservation message from the destination entity; and

making available, in response to the second resource reservation message, the one or more router's resources to the identified traffic flow.

21-39. (CANCELLED)

40. (PREVIOUSLY PRESENTED) A method for operating a router, comprising:

receiving a first modified Resource reSerVation Protocol (RSVP) message transmitted by a destination entity to a source entity;

allocating resources between the source entity and the destination entity for a Voice over Internet Protocol (VoIP) call, in response to the first modified RSVP message, and not making the resources available;

receiving, as an indication of acceptance of the VoIP call by the destination entity, a second RSVP message from the destination entity; and

making available the previously allocated resources for the VoIP call in response to receiving the second RSVP message.

1 41. (PREVIOUSLY PRESENTED) The method of claim 40, further comprising:
2 including in the first and second RSVP message a phase reservation flag, the first
3 RSVP message having an asserted phase reservation flag, the second RSVP message hav-
4 ing a deasserted phase reservation flag, and when the phase reservation flag is deasserted,
5 making available the resources that were previously allocated.

1 42. (CANCELLED)

1 43. (PREVIOUSLY PRESENTED) A router, comprising:
2 means for receiving a first modified Resource reSerVation Protocol (RSVP) mes-
3 sage transmitted by a destination entity to a source entity;
4 means for allocating resources between the source entity and the destination entity
5 for a Voice over Internet Protocol (VoIP) call, in response to the first modified RSVP
6 message, and not making the resources available;
7 means for receiving, as an indication of acceptance of the VoIP call by the desti-
8 nation entity, a second RSVP message from the destination entity; and
9 means for making available the previously allocated resources for the VoIP call in
10 response to receiving the second RSVP message.

1 44. (PREVIOUSLY PRESENTED) The router of claim 43, wherein the first modified
2 RSVP message has an asserted phase reservation flag, the second modified RSVP mes-
3 sage has a deasserted phase reservation flag, and the means for making available is re-
4 sponsive to when the reservation flag is deasserted.

1 45-46. (CANCELLED)

1 47. (PREVIOUSLY PRESENTED) The network device of claim 1, wherein the traffic
2 flow is a Voice over IP (VoIP) call to the destination entity.

1 48. (PREVIOUSLY PRESENTED) The network device of claim 47, wherein that the
2 destination entity accepts the VoIP call in response to removal of a handset from a cradle
3 of the destination entity.

1 49. (CURRENTLY AMENDED) The network device of claim 47, wherein the destina-
2 tion entity accepts the VoIP call in response ~~by~~to interaction with a Voice Over Internet
3 Protocol (VoIP) application on the destination entity.

1 50. (PREVIOUSLY PRESENTED) The network device of claim 1, wherein the first and
2 the second requests to reserve resources originate from the destination entity.

1 51. (PREVIOUSLY PRESENTED) The method of claim 10, wherein the traffic flow is a
2 Voice over IP (VoIP) call to the destination entity.

1 52. (PREVIOUSLY PRESENTED) The method of claim 51, wherein that the destination
2 entity accepts the VoIP call in response to removal of a handset from a cradle of the des-
3 tination entity.

1 53. (CURRENTLY AMENDED) The method of claim 51, wherein the destination entity
2 accepts the VoIP call in response ~~by~~to interaction with a Voice Over Internet Protocol
3 (VoIP) application on the destination entity.

1 54. (PREVIOUSLY PRESENTED) The method of claim 10, wherein the first and the
2 second requests to reserve resources originate from the destination entity.

1 55. (NEW) An apparatus comprising:

1 a traffic scheduler having one or more resources for use in forwarding network
2 traffic;

3 a resource reservation engine configured to receive a first resource reservation
4 message from a destination entity, the first resource reservation message identifying a
5 traffic flow between a source entity and the destination entity, the resource reservation
6 engine, in response to the first resource reservation message, to direct the traffic sched-
7 uler to allocate the one or more resources to the traffic flow, but not make the one or
8 more resources available to the traffic flow; and

9 the resource reservation engine further configured to receive a second resource
10 reservation message from the destination entity, the second resource reservation message
11 identifying the traffic flow, the resource reservation engine, in response to the second re-
12 source reservation message, to direct the traffic scheduler to make the one or more re-
13 sources available to the traffic flow.

1 56. (NEW) The apparatus of claim 55 wherein the first resource reservation message and
2 the second resource reservation message are modified Resource reSerVation Protocol
3 (RSVP) Reservation (Resv) messages.

1 57. (NEW) The apparatus of claim 55 wherein the first resource reservation message and
2 the second resource reservation message each include a reservation flag.

1 58. (NEW) The apparatus of claim 57 wherein the reservation flag of the first resource
2 reservation message is asserted, and the reservation flag of the second resource reserva-
3 tion message is deasserted.

1 59. (NEW) The apparatus of claim 55 wherein the traffic scheduler is further configured
2 to discard at least some network traffic associated with the traffic flow, while the one or
3 more resources are allocated to, but not available to, the traffic flow.

1 60. (NEW) The apparatus of claim 55 wherein the traffic flow is a Voice over Internet
2 Protocol (VoIP) call.

1 61. (NEW) The apparatus of claim 60 wherein the source entity is associated with a call-
2 ing party of the VoIP call, and the destination entity is associated with a called party of
3 the VoIP call.

1 62. (NEW) The apparatus of claim 55 wherein the one or more resources comprise a pri-
2 ority queue.

1 63. (NEW) The apparatus of claim 55 wherein the one or more resources comprise a filter
2 setting.

1 64. (NEW) The apparatus of claim 55 wherein the one or more resources comprise a traf-
2 fic shaper.

1 65. (NEW) The apparatus of claim 55 wherein the one or more resources comprise a net-
2 work link.